Inadequate Mine Countermeasure Systems and Capabilities for Future Amphibious Operations

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INADEQUATE MINE COUNTERMEASURE SYSTEMS AND CAPABILITIES FOR FUTURE AMPHIBIOUS OPERATIONS

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> When a one-thousand-dollar mine can severely damage a one-billion-dollar ship...it is time to do something about it (Edney, 1).

The significance of mines to naval operations has been recognized in modern warfare. For example, during the Korean War the Chief of Naval Operations, Admiral Forrest P. Sherman observed before an amphibious assault on Wonsan:

> When you can't go where you want to, when you want to, you haven't got command of the sea. And command of the sea is a rock-bottom foundation for all our war plans. We've been very submarine-conscious and air-conscious. Now we're getting mine-conscious, beginning last week (Tamara, 78).

Amphibious mining played havoc in North Vietnam, the Suez Canal, the Falkland Islands, and in Operation Desert Storm. During the Gulf War, Iraqi mining operations in the coastal waters and along prospective assault beaches directly influenced U.S. plans for possible amphibious operations, causing Admiral Frank B. Kelso II to remark:

> I believe there are some fundamentals about mine warfare we should not forget. Once mines are in place, they are quite difficult to get rid of. That is not likely to change. I think it is probably going to get worse, because mines are going to get more sophisticated (CNO, 1).

The Marine Corps Amphibious Force of the 21st century will be the best in the world only if effective systems are developed and proper training is provided to conduct mine countermeasures. Unfortunately, the Navy and Marine Corps still lack the ability to counter all types of mines effectively at all water depths.

For that reason, the U.S. and its allies should proceed in full force to take initiative in developing and funding programs necessary to improve mine countermeasures capabilities.

The first major lesson learned from Operation Desert Storm was that the Navy lacked a unified command structure. The mine countermeasures commander’s staff consisted of twenty-three individuals assembled from twenty-one different commands, resulting in a command staff that was ill prepared for its task. Second, mine warfare forces, both the Navy and Marine Corps need to improve readiness through sustained and joint training with existing equipment and doctrine. Third, the Navy acknowledges the need to identify and acquire the necessary resources to carry out its MCM mission.

One of the significant limitations demonstrated during Operation Desert Storm was the Navy’s inability to conduct mine countermeasures in shallow waters, one of its greatest challenges. The Navy recognized the need to develop this capability because enemy forces can easily lay mines and obstacles in shallow water; this area is closest to the enemy shorelines and surf action buries many mines making them harder to detect. Without a shallow water mine countermeasures capability, the only alternative for the amphibious forces would be to avoid an enemy minefield and make an approach in another area. The risk associated with this maneuver, however, is that

enemy forces maybe able to anticipate the location of amphibious landings more easily. However, critical limitations identified during Operation Desert Storm still exist today. While the Navy is pursuing several projects to address these limitations, it has not developed a long-range plan that identifies a baseline of its system's current capabilities and weaknesses nor has it established priorities among its competing projects to sustain the development and procurement of the most needed systems. Furthermore, the Navy's current plans to bring additional systems on line beyond 2001 in support of amphibious assaults are uncertain. The decline in defense spending has led to shortages in military resources and manpower even though mine countermeasures programs to support national strategy remain a paramount issue.

Primitive and sophisticated "state-of-the-art" amphibious mines are available to Third World/Rogue countries. China, for example, sells mines to a variety of Third World countries including Bangladesh. China's arsenal includes the EM55, a straight-rising, rocket-propelled warhead mine that could be deployed in deep water against both submarines and surface ships. With this technology, the enemy can deliver the warhead into a target faster with less time of exposure thus increasing enemy survivability. With the current threat, countries with lack of developed political infrastructure and rise of radical

terrorist organizations operating in the world have heightened concerns about easy access, careless oversight and indiscriminant use of these mines. The U.S. Naval Mine Warfare Plan counts thirteen mine-producing countries, including Iraq, Sweden, Italy, China, North Korea and South Africa. The mine inventory of the former Soviet Union alone is 350,000 weapons. Recent estimates suggest that forty-five nations have mine warfare capabilities.

Our national military strategy has shifted from deterrence to regional crisis management and requires the services to prepare now for an uncertain future. Guided by the Joint "*Vision 2010*" concepts of Full Dimension Protection, Precision Engagement, Focused Logistics, and Dominant Maneuver, the Navy's Mine Warfare Plan includes continuing development of cutting edge mine warfare forces and technology for both mine countermeasures and mining. The Navy and Marine Corps have incorporated this vision into the operational concepts of "Forward...From the Sea" and "Operational Maneuver from The Sea (OMFTS)." The concepts are premised on our ability to use the sea and particularly littoral waters to enable joint maneuver. Both historical precedent and the nature of today's asymmetric threats indicate that these regions will be mined, making mine countermeasures capabilities a critical element of our operational requirements.

The Navy and Marine Corps are sponsoring a robust research and development effort to improve the full range of mine warfare capabilities, including detection, classification, identification, neutralization, and sweeping. More importantly, the services are changing attitudes toward mine warfare, transforming it from a domain for specialists to a basic skill for all warfighters. In addition, this campaign plan also focuses on shortening the mine countermeasures tactical timeline, eliminating the requirement for manned operations in the minefields, and includes several complementary elements:

- Ensuring the continued readiness of current specialized MCM forces, decreasing the time required to respond to mine threats, and improving the ability of our forces to counter the evolving complexity of the world's mine threat technology.

- Developing and fielding a comprehensive mine countermeasures capability in the Very Shallow Water (VSW) region, Surf Zone (SZ), and Craft Landing Zone (CLZ) to support the operational concepts of Operational Maneuver From The Sea (OMFTS), and the associated tactic of Ship To Objective Maneuver (STOM).

- Fielding organic mine countermeasures systems in the fleet to give operating forces the ability to conduct timely mine countermeasures operations.

- Executing an mine countermeasures Fleet Engagement Strategy to ensure the coordinated development of professional education, training, tactics, doctrine, science and technology initiatives, public affairs, and naval and Department of Defense (DOD) policies necessary in order to deliver operational expertise coincident with delivery of organic systems to the fleet (NMWP, 5).

The U.S. Navy's dedicated MCM force is composed of fourteen AVENGER (MCM-1) Class MCM ships, twelve OSPREY (MHC-51) Class Coastal Mine-Hunters, two squadrons of MH-53 Airborne MCM (AMCMC) helicopters, Navy Explosive Ordnance Disposal (EOD) forces composed of fifteen mine countermeasures specialized EOD detachments, two MCM Marine Mammal System (MMS) detachments, and a Very Shallow Water (VSW) MCM detachment. These forces form the "triad" of Surface Mine Countermeasures (SMCM), Airborne Mine Countermeasures (AMCM), and EOD. The triad provides sustained combined mine countermeasures operations on short notice. The USS Inchon (MCS-12) provides dedicated MCM command, control, and support ships to coordinate and support multi-faceted mine countermeasures operations with surface, air, and EOD forces. The specialized Mine Countermeasures Force maintains a combat-ready mine countermeasures capability at all times. The MH-53 airborne mine countermeasures squadrons maintain a detachment of aircraft and crews on seventy-two hours alert to deploy via airlift to any area worldwide. Also, fifteen trained mine countermeasures EOD detachments are deployed worldwide, distributed in each Commander-in-Chief (CINC) area of responsibility (NMWP, 6).

In addition to the equipment mentioned, a 1996 report to the U.S. House of Representatives (Chairman, Subcommittee on Military Research and Development, Committee on National

Security) revealed that the Navy and Marine Corps are in the development and testing phase of six mine countermeasures systems to clear mines and obstacles in shallow water: Obstacle Breaching, Semi-Autonomous Acoustic/Magnetic Vehicle, Shallow Water Assault Breaching System (SABRE), Distributed Explosive Technology (DET), Explosive Neutralization Advanced Technology Demonstration (ENATD), and Advanced Lightweight Influence Sweep (ALISS). Eleven years after Operation Desert Storm, however, the Navy has not added any of these systems to its fleet (U.S. GAO, 1). Moreover, the Navy has not made final decisions about additional systems such as those which conduct mechanical sweeping, hunt for buried mines, or perform reconnaissance of mines in very shallow water.

Current equipment and capabilities issues certainly need to be addressed also. The Navy now possesses fourteen ocean-going mine countermeasures ships and is experiencing significant logistics challenges to keep them operational. The ships have been unavailable at times for training because of failures of critical systems and equipment. The reliability and maintainability problems of these ships have affected the mission readiness. In addition, the Navy began to acquire twelve coastal mine-hunter ships in the mid-80s to counter the mine threat of the former Soviet Union. Because this threat to U.S. coastal waters was greatly diminished with the fall of the

Soviet Union, the originally intended mission of the coastal ships no longer exists. However, instead of removing some of these ships from the Navy's inventory, as recommended by the Department of Defense Inspector General in May 1995, the Navy is continuing to purchase all twelve ships at a total cost of about $1.5 billion. The deployment capability of the coastal ships is limited. These ships are not designed to travel across the ocean under their own power, can only operate at sea for a maximum of five days, and have very limited capability to communicate with other fleet units. It will cost the Navy on average of $3.6 million per year to operate and maintain each of the coastal mine-hunter ships. This misappropriation of funding has a profound effect in exploring mine countermeasures equipment and systems for future testing and development.

In addition, funding shortfalls for some of these projects experienced technical and developmental delays. The Navy's Distributed Explosive Technology (DET) and Shallow Water Assault Breaching System (SABRE) programs are examples of two of these projects. Initially, the Navy planned to destroy enemy mines in the surf zone by deploying these systems from the beach into the water. The Navy has since changed its strategy and is now planning to deploy these systems from the water onto the beach off of Landing Craft Air-Cushion (LCAC) vehicles. This change in strategy has resulted in an initial operating capability delay

of about two years. Due to this decision, the Navy had to redesign the rocket propulsion mechanisms that would deliver these systems to the targeted area and conduct additional testing to examine the impact of launching DET and SABRE from an unstable platform. Unfortunately, around fiscal year 1998 or 1999 these two systems were cancelled due to budget constraints.

Amphibious mines remain a barrier that may restrict our success in regional conflicts or “littoral” warfare. They can disrupt shipping lines of communication and destroy battle plans; yet few nations, including the United States, possess the mine countermeasures capability to overcome the threat. The U.S. recognition of the complexity of mine countermeasures and the limitations of one system for all types of mines at all water depths is a step in the right direction. However, progress toward correcting resource imbalances has not been made and shortfalls in the response to the growing threat still exist today. Currently, the Navy and Marine Corps have no single system that can provide the capability to conduct mine countermeasures from deep water to the beach. Therefore, our ability to conduct amphibious breach from shallow water to surf zone in an opposed beach is none. In addition, the Navy and Marine Corps do not have definitive plans that identify additional systems needed to acquire necessary shallow water to surf zone capabilities in the future.

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